PERMIT TO CONSTRUCT/OPERATE EVALUATION

Applicant name: Aerocraft Heat Treating Co. Inc. (FACILITY ID# 23752)

Mailing address: 15701 Minnesota Ave.
Paramount, Ca 90723

Equipment Location: 15701 Minnesota Ave.
Paramount, Ca 90723

EQUIPMENT DESCRIPTIONS:

APPLICATION NO. 454822

AIR POLLUTION CONTROL SYSTEM (C56, C59, C60) CONSISTING OF:

1. DUST COLLECTOR, TORIT, CARTRIDGE TYPE, MODEL DFT-4-16, WITH 16 CARTRIDGE FILTERS, EACH 1'1.84" DIA. x 2'2"L, 4064 SQ. FT. TOTAL FILTER AREA, AND A PULSE JET CLEANING SYSTEM
2. HEPA FILTRATION MODULE, WITH FOUR PRE-FILTERS, EACH 24"L X 24"W X 2"T AND FOUR HEPA FILTERS, EACH 24"L X 24"W X 11.5"T
3. EXHAUST SYSTEM WITH A 40-HP BLOWER VENTING A PLASMA ARC CUTTING MACHINE

APPLICATION NO. 454823

PLASMA ARC CUTTER (D57) WITH DOWNDRAFT TABLE, KOIKE ARONSON, MODEL NO. PLP 2500, 30KW, 19'-3" L x 7'8'' W x 24'' H.

APPLICATION NO. 455389

RECLAIM/TITLE V De MINIMIS SIGNIFICANT REVISION

APPLICATION NO. 458098

TITLE V RENEWAL APPLICATION

PERMIT CONDITIONS: (SEE SAMPLE PERMIT)

BACKGROUND:

Aerocraft Heat Treating Co. Inc. operates a metal heat treating facility in Paramount. It is a Title V and Reclaim Facility (Facility ID# 23752).

Application No. 454822 was filed on 03/17/2006 for a permit to operate a baghouse. The baghouse was installed and operated without a permit to construct.

Application No. 454823 was filed on 03/17/2006 for a permit to operate a plasma cutter. The plasma cutter was installed and operated without a permit to construct.

Application No. 455389 was filed on 03/17/2006 for a Reclaim/Title V De minimis Significant Revision.

Application No. 458098 was filed on 06/20/2006 for a Title V application renewal.

PROCESS DESCRIPTION:

The plasma cutter is cutting stainless steel plates for racks used in their heat treating operations. They are replacing old racks as they become unusable. The machine will cut slats and legs that are assembled to make the racks. This machine is not used for manufacturing purposes.

EMMISSION EVALUATION:

APPLICATION NO. 454822 and 454823

The "Ultra Web" cartridge provides a removal efficiency of about 99% efficiency. The pre-filters are to be used to reduce loading on the more expensive HEPA filters. The four DOP tested HEPA filters provide 99.97% removal efficiency for 0.3 micron or larger particles. This 99.97% will be used for emissions calculations for the overall control efficiency of the APC system.

The APC system vents the plasma cutter at 8500 CFM through a 20" line at 4400 FPM. Since the downdraft table is 147.6 sq. ft., the result is a down flow of 58 FPM. This APC system will exceed the American Welding Society standards, which recommends a minimum of 6000 CFM for a 250 sq. ft. table at 24 FPM.

The maximum amount of material cut on this machine will be 4 stainless steel plates per year of 8 feet x 20 feet. Also, the machine will cut a maximum of 3 stainless steel plates per year of 8 feet x 20 feet. The maximum total lineal feet per year cut will be 4,880 linear feet with a maximum of

0.5" thick material and with about a 1/16" average wide cut. 75% of the material cut is RA330. 25% of the material cut is 304 Stainless. The cutter is 30KW.

RA330 material contains 2% max of manganese compounds, 20% max of hex chrome compounds, and 37% max nickel content. 304 Stainless material contains 2% max of manganese compounds, 20% max of hex chrome compounds, and 12% max nickel content.

Air Cloth Ratio
Given: Filter Area = 4064 Total Sq. Ft.
Bower CFM = 8500 cfm
Air Cloth Ratio = 4064/8500 = 2.1

The Air Cloth Ratio is 2.1, which is acceptable.

ASSUMPTIONS

Operating Schedule: 5 hr/day, 2 days/wk, 5 wks/yr
Average Thickness: 0.5 inches
Average Width: 1/16 inch

Emission factors: Joe Tramma's memo dated 03/25/1991;

1) PM e mission factor (steel plate) = .145 lb/lb of metal melted
2) CR +6 emissions = .00022 lb/lb in metal melted

Control
1) Hepa control efficiency = 99.97%

Plate Data:

Max Cut per Year = **4,880 linear feet** (Approx 4 leg cutting plates of 8'x 20'. Approx 3 slat cutting plates of 8' x 20')

Max Cut per Week = 4880 ft/yr * (1yr/5 wks) = **976 feet**

Max Cut per Day = 976 feet/wk * (1wk/ 2 days) = **488 feet/day**

Max Cut per Hour = 488 feet/day * (1 day/ 5hrs) = **98 linear feet/hr**

Leg Cutting - *Please see diagram Attachment A-1*

Notch

Avg. Notch = 5/8"W x 4.0" Length = 2.5 sq. inches

2.5 sq. inches x 0.5 inches Thick = 1.25 cu. inches

1.25 cu. inches x 35 notches = 43.75 cu. inches

Longitudinal

Stainless Steel Plate:

20' x 6 cuts = 120' = 1440 inches x (.0625"W) x (0.5"T) = 45 cu. inches

Transverse

8' x 4 cuts = 32' = 384 inches x (.0625"W) x (0.5"T) = 12 cu. inches

Leg Cutting Total (linear feet) = 43.75 cu. inches + 45 cu. inches + 12 cu. inches = 100.75 cu. inches

Emissions:

FROM MSDS,

Density, RA330 steel = .287 lbs/cu. inches
Density, 304 Stainless = .285 lbs/cu. inches

Total Amount of material cut = 100.75 cu. inches x 4 steel plates/yr = 403 cu. inches/yr

75% of material melted = .75(403 cu. inches/yr) x (.287 lbs/ 1cu.inch) = 86.8 lbs/yr
25% of material melted = .25(403 cu. inches/yr x (.285 lbs/1 cu. inch) = 28.7 lbs/yr

86.8 + 28.7 =115.5 lbs total from leg cutting

Slat Cutting – *Please see Diagram Attachment A-2*

Longitudinal

Stainless Steel Plate:

20' x 48 cuts = 960' = 11,520 inches x (.0625"W) x (0.5"T) = 360 cu. inches

Transverse

8' x 4 cuts = 32' = 384 inches x (.0625"W) x (0.5"T) = 12 cu. inches

Leg Cutting Total (linear feet) = 360 cu. inches + 12 cu. inches = 372 cu. inches

Emissions:

FROM MSDS,

Density, RA330 steel = .287 lbs/cu. inches
Density, 304 Stainless = .285 lbs/cu. inches

Total Amount of material cut = 372 cu. inches x 3 steel plates/yr = 1,116 cu. inches/yr

75% of material melted = .75(1,116 cu. inches/yr) x (.287 lbs/ 1cu.inch) = 240.2 lbs/yr
25% of material melted = .25(1,116 cu. inches/yr) x (.285 lbs/1 cu.inch) = 79.5

240.2 + 79.5 = 319.7 lbs total from slat cutting

Combined Cutting

Leg Cutting + Slat Cutting

Combined amount of material melted = 115.5 lbs/yr + 319.7 lbs/yr

= **436 lbs/yr total combined**

TOTAL UNCONTROLLED EMISSIONS:

PM = 436 lbs/yr x 0.145 lb/lb metal melted = 63.2 lbs/yr
= 63.2 lbs/yr (1yr/5 weeks) (1 week/2days) (1day/5hrs) = 1.26 lbs/hr

CR+6 = 436 lbs/yr x .20 x .00022 lb/lb of CR in metal melted = .0192 lb/yr
= .0192 lbs/yr (1yr/5weeks) (1 week/2days) (1 day/5hrs) = .000384 lbs/hr

Ni = .75(63.2 lbs/yr x .37) + .25(63.2 lbs/yr x .12) = 19.43 lbs/yr
= 19.43 lbs/yr (1yr/5weeks) (1 week/2days) (1 day/5hrs) = .3887 lbs/hr

Manganese = 63.2 lbs/yr x .02 = 1.264 lbs/yr
= 1.264 lbs/yr (1yr/5weeks) (1 week/2days) (1 day/5hrs) = .0253 lbs/hr

TOTAL CONTROLLED EMISSIONS

System Control Factor = .0003 (1-99.97%)

PM = 1.26 lbs/hr x .0003 = .000378 lbs/hr
PM10 = .5 (.00378 lbs/hr) = .000189 lbs/hr

Chrome +6 = .000384 lbs/hr x .0003 = .00000011 lbs/hr

Nickel = .3887 lbs/hr x .0003 =.00012 lbs/hr

Manganese = .0253 lbs/hr x .0003 = .0000075 lbs/hr

RULES EVALUATION:

Rule 212 - Standard for Approving Permits

Paragraph 212(c)(1) Requires a public notice for all new or modified permit units that may emit air contaminants located within 1,000 feet from the outer boundary of a school. According to the website geodistance.com the nearest school, Westle Gaines Elementary, is approximately 1,750 feet from Aerocraft's property line. A 30-Day Public Notice is not required under this paragraph.

Paragraph 212(c) (2) The equipment will not result in on-site emission increasing exceeding the daily maximum emissions as specified in the table in Rule 212(g). Therefore, a 30-day public notice period will not be required under this paragraph.

Paragraph 212(c)(3) Public notice will not be required under this paragraph. See Rule 1401 evaluation section.

Please refer to Rule 3006(a) (1). Public Notice Required.

Rule 401- Visible Emission: No visible emission is expected if the equipment is well maintained and properly operated. Therefore, compliance is expected.

Rule 402- Nuisance: Since 2003, Aerocraft Heat Treating Co. was issued NOV # P51859 and NOV # P50289 for failure to comply with RECLAIM reporting requirements. The NOV's issued were not for nuisance or a violation leading to a nuisance. In addition, there are no complaints in the District Compliance CLASS data base

alleging Aerocraft Heat Treating Co. of any nuisance. Compliance with this rule is expected without any nuisance problems.

Rule 404 - Equipment is expected to operate in compliance.

Rule 405 - Equipment is expected to operate in compliance.

Rule 1303(a)-BACT: The BACT requirements for this equipment are:

	Criteria Pollutants					
Subcategory/Rating/ Size	**VOC**	**NOX**	**NOX + NMHC**	**SOX**	**CO**	**PM10**
> 30 KVA Electrical Input						Water Table and Nozzle Water Shroud; or Electrostatic Precipitator (1988)

The operator has installed a dust collector/hepa filter emission control system for the plasma cutter which is better emission control than BACT.

Rule XIII -Modeling: Modeling is not required as the PM10 emissions are .000189 lbs/hr which is less than the .41 lb/hr specified in the appendix A of Rule 1303.

Rule XIII -Offsets: Offsets are not required because the project's potential to emit of PM10 is less than 0.5 lbs/day.

Rule 1401- New Source Review of Toxic Air Contaminants: The dust collector/hepa filter collection system is considered T-BACT system and MICR is less than one in a million even if operated 24/7. Therefore, compliance is expected.

Reg XXX - Title V Permits: Aerocraft has applied for a Title V renewal and "De Minimis Significant Permit Revision." Therefore, EPA 45-day review is required.

Rule 3006(a)(1) - Aerocraft has applied for a Title V permit renewal. Therefore, Public Notice is required.

Maximum individual Cancer Risk (MICR) Calculations:

Total maximum individual cancer risk from the operation of the plasma cutter is less than 1-per million for both the nearest residential receptor and the nearest offsite worker receptor (Risk Assessment attached). Since the total MICR is less than one-per-million and the source has T-BACT, an estimate of cancer burden is not required.

CONCLUSIONS AND RECOMMENDATIONS:

Based on the evaluation contained herein, the subject equipment will comply with all of the District's rules and regulations; therefore, I recommend a Permit to Construct/Operate be issued to this equipment.

TIER 2 SCREENING RISK ASSESSMENT

Application deemed complete date:	04/22/06
A/N:	454822
Fac:	23752

Stack Data

		Units
Hour/Day	24	hr/day
Day/Week	7	day/wk
Week/Year	52	wk/yr
Emission Units	lb/hr	
		0
Control Efficiency	1.00	fraction range 0-1
Does source have TBACT?	YES	
Point or Volume Source ?	P	P or V
Stack Height or Building Height	7	feet
Area (For Volume Source Only)		ft^2
Distance-Residential	25	meters
Distance-Commercial	25	meters
Meteorological Station	Compton	

Source Type:	O - Other
Screening Mode	NO

Emission Units	lb/hr	
Source output capacity	n/a	n/a

FOR USER-DEFINED CHEMICALS AND EMISSIONS, FILL IN THE TABLE BELOW

USER DEFINED CHEMICALS AND EMISSIONS				R1 - Uncontrolled	Efficiency Factor	R2 - Controlled
Code	Compound	lb/hr	Molecular Weight	lbs/hr	Fraction range 0-1	lbs/hr
m2	Manganese and manganese compounds	1.10E-07	54.938	0.00000011	0.99970	3.3E-11
n1	Nickel & nickel compounds (except nickel oxide):	1.20E-04	58.71	0.00012	0.99970	3.6E-08
c20	Chromium, hexavalent	7.50E-06	51.996	0.0000075	0.99970	2.25E-09
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TIER 1 SCREENING RISK ASSESSMENT

Receptor Distance (actual)	25
Receptor Distance (for X/Q lookup)	25

Tier 1 Results	
Cancer/Chronic ASI	**Acute ASI**
9.03E-02	1.20E-05
PASSED	PASSED

APPLICATION SCREENING INDEX CALCULATION

Compound	Average Annual Emission Rate (lbs/yr)	Max Hourly Emission Rate (lbs/hr)	Cancer / Chronic Pollutant Screening Level (lbs/yr)	Acute Pollutant Screening Level (lbs/hr)	Cancer / Chronic Pollutant Screening Index (PSI)	Acute Pollutant Screening Index (PSI)
Manganese and manganese compounds	2.88E-07	3.30E-11	6.61E+00		4.36E-08	
Nickel & nickel compounds (except nickel oxide):	3.14E-04	3.60E-08	1.25E-01	3.00E-03	2.51E-03	1.20E-05
Chromium, hexavalent	1.97E-05	2.25E-09	2.24E-04		8.78E-02	
TOTAL (APPLICATION SCREENING INDEX)					**9.03E-02**	**1.20E-05**